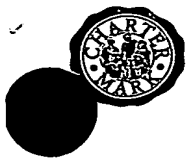
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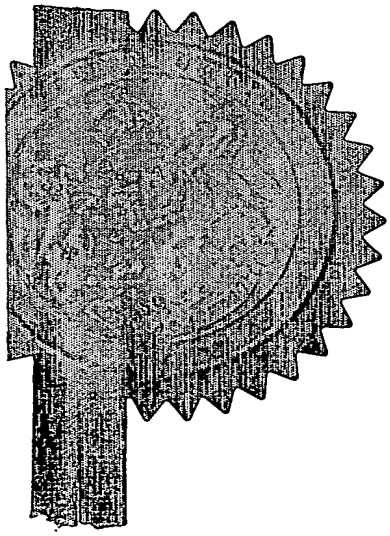
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Signed Stephen Hordley

Dated 20 August 2003

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The Patent Office

Cardiff Road
Newport
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NP10 8QQ

1. Your reference

RAB.P04705GB

2. Patent application number
(The Patent Office will fill in this part)

0218347.3

08 AUG 2002

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

Primac Limited
50 High Street
Hungerford
Berkshire RG17 0NE

Patents ADP number *(if you know it)*

06225480002

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

4. Title of the invention

Retractable Barrier System

5. Name of your agent *(if you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

Marks & Clerk
27 Imperial Square
Cheltenham
Gloucestershire GL50 1RQ

Patents ADP number *(if you know it)*

570001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day / month / year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
See note (d))

Yes

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form	0
Description	7
Claim(s)	0
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Drawing(s)	1 + 1

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Translations of priority documents	
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	
Request for preliminary examination and search *(Patents Form 9/77)*	
Request for substantive examination *(Patents Form 10/77)*	
Any other documents *(please specify)*	

11. I/We request the grant of a patent on the basis of this application.

Signature Marks & Clerk Date 7 August 2002

Marks & Clerk

12. Name and daytime telephone number of person to contact in the United Kingdom — Richard Bailey — 01242 524520

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Retractable Barrier System

This invention relates to a retractable barrier system. The invention relates in particular to a retractable barrier system suitable for outdoor use, but is not restricted to arrangements intended for such use.

A retractable barrier system typically comprises a housing within which a rotatable spool is mounted. A length of webbing is carried by the spool, the webbing typically carrying, at a free end thereof, part of a catch arrangement or mechanism to allow the free end of the webbing, when withdrawn from the housing, to be secured to an object spaced apart from the housing to form a barrier between the housing and the object to which the end of the webbing has been secured. A spring arrangement is provided within the housing to apply a biassing force to the spool such that, upon withdrawal of the webbing from the housing causing rotation of the spool, a load is applied to the spool urging the spool to rotate to retract the webbing into the housing. As a result, when the catch arrangement or mechanism is released, the webbing of the barrier retracts into the housing.

Retractable barriers are used in a wide range of applications. For example, barriers of this type are commonly installed, indoors, at supermarket check-outs for use to indicate which check-outs are closed, or as queue management systems.

Barriers of this type are also used outdoors, again, for example, in queue management systems.

When used outdoors, the retractable barriers are obviously exposed to conditions far more extreme than when used indoors. For example, when used outdoors, the webbing may become damp or wet. If retracted into the housing whilst still damp or wet, then there is the risk that water may come into contact with, for example, the spring or other components of the barrier which may then corrode. It will be appreciated that the manner in which water comes into contact with, for example, the spring may either result from water dripping or running out of the webbing and onto the spring, or may result from the water evaporating from the webbing and condensing on the spring.

It is an object of the invention to provide a retractable barrier system suitable for use in outdoor applications in which the disadvantages set out above are of reduced effect.

According to the present invention there is provided a retractable barrier system comprising a housing, a spool supported for rotation within the housing, a spring arranged to provide a biassing load to the spool, and a skirt carried by the spool and arranged to deflect water impinging thereon, in use, around the spring.

Clearly, by providing a skirt adapted to deflect water away from the spring,

the risk of water coming into contact with the spring is reduced and as a result, the likelihood of corrosion of the spring is also reduced.

The retractable barrier system is conveniently designed such that, in use, when webbing is carried by the spool, the spring is located beneath the webbing, the skirt being located between the webbing and the spring.

By locating the spring so that, in use, it is beneath the webbing, the spring is less likely to be adversely effected by condensation.

The skirt conveniently forms part of the spool, and is preferably an integral part of the spool.

A cover may further be provided, the cover forming, with the skirt, a closed compartment within which the spring is located. The cover may act as a spring carrier into or onto which the spring may be placed during assembly.

Preferably the housing contains a fixed spindle, the spool being mounted for rotation about the spindle. Conveniently one end of the spring is anchored to the spindle or to the housing, and the other end of the spring is arranged to drive the spool.

The invention will further be described, by way of example, with reference to the accompanying drawing, Figure 1, which is a diagrammatic sectional view of a retractable barrier system in accordance with an embodiment of the invention.

Referring to the accompanying drawing, the retractable barrier system comprises a housing 10, for example of box-like steel construction although other shapes are possible and of course the housing could be manufactured of other materials. Within the housing 10 is a spindle 12. The spindle 12 is secured within the housing 10 against rotation, the spindle 12 being orientated such that, in use, it is arranged generally vertically.

The spindle 12 carries a spool 14, the spindle 12 extending through a passage of an appropriate diameter formed in the spool 14. The manner in which the spool 14 is carried by the spindle 12 is such as to allow the spool 14 to rotate relative to the spindle 12. As the spindle 12 is orientated to extend, in use, generally vertically, it will be appreciated that the spool 14 is rotatable, in use, about a generally vertical axis. The spool 14 is shaped so as to define a region 16 of generally cylindrical form, and a skirt 18 located, in use, beneath the region 16. The region 16 has secured thereto, in use, an end of a length of webbing 20, the webbing 20 being wound around the region 16 of the spool 14. A slot may be provided in the region 16 of the spool 14 to enable the webbing to be secured thereto. A free end 22 of the webbing 20 extends through a slot 24 formed in the housing 10, part of a catch arrangement 26 being secured to the free end 22.

The skirt 18 includes an upper wall 28 of slightly downwardly angled form

and a peripheral wall 30 which depends from the periphery of the upper wall 28. The skirt 18 therefore defines a cavity 32, and a coiled spring 34 is provided within the cavity 32. A spring carrier member 36 is provided which closes the cavity 32. The spring carrier member 36 may simply be a friction fit within the peripheral wall 30, or alternatively may be secured in position using adhesive. Alternatively, a snatch groove or screw threaded coupling may be provided between these components. In any of these arrangements, cooperatively shaped driving means may be provided, for example in the form of a key/keyway arrangement, to ensure that the spring carrier member 36 rotates with the skirt 18. The spring carrier member 36 is shaped to include an outer peripheral wall 38 provided with a slot (not shown) or other formation with which an outer end of the spring 34 engages.

A spring anchor member 40 projects through a central opening formed in the spring carrier member 36, the spring anchor member 40 including a tubular part 42 surrounding part of the spindle 12. The tubular part 42 is provided with a slot (not shown) or other formation in or with which an inner end of the spring 34 engages. The spring anchor member 40 further includes an annular plate region 44 located, in use, between the spring carrier member 36 and the housing 10 and serving as an end thrust bearing for the spool 14. The region 44 carries a plurality of projections (not shown) which extend through corresponding openings provided in the housing

10 to secure the spring anchor member 40 to the housing 10 and prevent the spring anchor member 40 from rotating.

It will be appreciated that as the spring 34 is secured between the spring anchor member 40 which is fixed against rotation and the spring carrier member 36 which is secured to, and rotatable with, the spool 14, as the free end 22 of the webbing 20 is withdrawn from the housing 10, the spool 14 will rotate causing the spring 34 to wind up. Upon release of the free end 22 of the webbing 20, the biassing force applied by the spring 34 causes the spool 14 to rotate to retract the webbing 20 into the housing 10.

During assembly of the retractable barrier system, some pre-load or pre-stressing is applied to the spring 34, and this is conveniently achieved by providing the upper end of the spool 14 with a region 46 of, for example, hexagonal shape to permit it to be gripped by a suitable tool to assist in rotating the spool 14.

It will be appreciated that where the retractable barrier system is used outdoors, then there may be occasions where the webbing 20 is retracted into the housing whilst damp or wet. During such retraction, the action of the webbing being retracted and wound onto the spool 14 may squeeze some water from the webbing 20. Further water may drain from the webbing after completion of retraction. The water will tend to impinge upon the skirt 18, the angle of the skirt 18 causing the

water to flow radially outwardly and then around the peripheral wall 30. Little or no water tends to enter the cavity 32, thus the risk of corrosion damage to the spring 34 is reduced.

It will be appreciated that a number of modifications may be made to the design described above, for example changing the shapes of various components and the materials from which they are manufactured, and that such modifications fall within the scope of the invention.

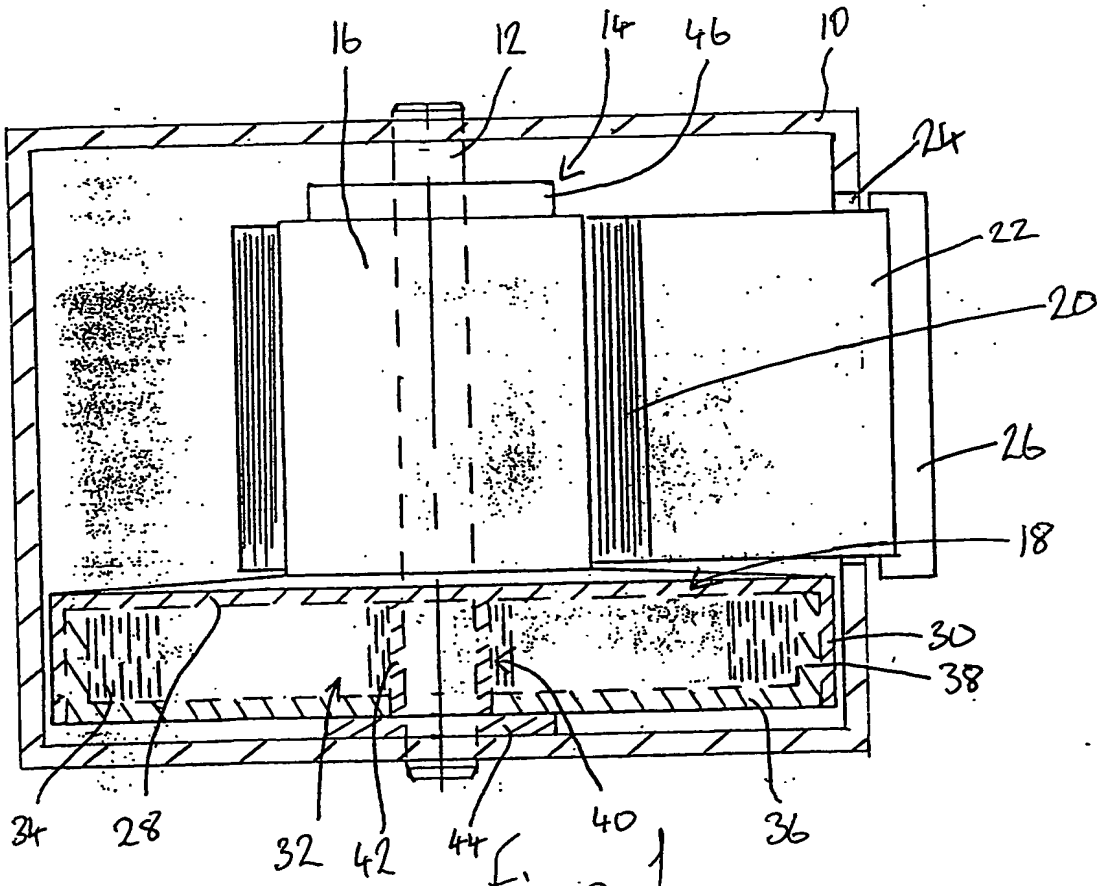


Figure 1

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